TERRESTRIAL COMMUNITY TYPES AND CONSERVATION ACTIONS

Twelve of the 21 unique terrestrial community types across the 7 Ecoregions, were identified as Tier I. This resulted in 51 geographical areas for which conservation actions needed to be identified. Please note that community types may be found in Ecoregions other than what is depicted on the maps. Only locations where the community types are considered Tier I are displayed and addressed (see Terrestrial Community Types under Methods).

Many of the terrestrial community types in Montana have similar threats, though the magnitude and urgency of those threats may be dissimilar. Likewise, the conservation actions addressing those threats may be different depending on the community type and the geographic area. Threats, impacts, and actions are outlined by individual terrestrial CTGCN in the following pages. However, several conservation actions have been developed for all terrestrial CTGCN and are identified here.

Broad Actions

Collaboration and outreach

- Actively participate with private landowners, watershed groups, non-governmental organizations, state and federal government agencies, local governments, tribes, landtrusts, conservation districts, and other interested parties to: ensure work plans consider wildlife habitat needs during planning and implementation; ensure effective cooperation; work collaboratively; and promote SGCN and habitat conservation while maintaining private land management objectives.
- Conduct outreach to landowners to implement land management practices that benefit SGCN.
- Continue to disseminate information to the public through annual meetings and press releases.
- Continue to work with FWP lands acquisition personnel.
- Educate individuals on the importance of habitat conservation through one-on-one contacts, attending public meetings, and through various media outlets.
- Educate the public and land managers about the high values of CTGCN and how to better manage these habitats in ways that balance their management objectives with the conservation actions outlined in this SWAP.
- Emphasize native vegetative species growth that is beneficial to SGCN seasonally or year-round.
- Identify programs and funding sources that can provide incentives for landowners to conserve, manage, and/or restore habitat for SGCN; potentially provide appropriate incentives to landowners that cooperate in habitat restoration activities.
- Incorporate other agencies' Best Management Practices (BMP) when implementing actions outlined in this SWAP.
- Keep the FWP Regional Citizen Advisory Councils informed of SGCN conservation efforts.
- Provide decision makers with data about pollution impacts on SGCN to help them set water quality standards.
- Work closely with landowners and various government agencies on species restoration plans.

- Work with willing landowners and land management agencies on habitat projects using Habitat Montana (FWP 1994), SWG, and other funding sources.

Conservation areas

- Continue to utilize Habitat Montana (FWP 1994) to review potential acquisitions.
- Encourage and support opportunities such as land acquisitions or perpetual easements to conserve CTGCN.
- Prioritize conservation easements and acquisitions adjacent to current conservation investments in order to create contiguous protected habitat that provide habitat linkages across large landscapes.
- When appropriate, designate an area as an important conservation area, natural area, or special botanical area due to the unique qualities and importance of the community type.
- Work with partners to provide large, connected habitat patches across the state, that are resilient and adaptable to existing impacts and future threats.
- Work with willing landowners, agencies, and organizations to purchase land or acquire conservation easements that support SGCN to: provide access to resources, prevent further habitat fragmentation, and preserve natural habitat function.

Habitat/species work

- Collect trend data and survey SGCN.
- Encourage erosion control through soil management techniques.
- Gather data with respect to SGIN.
- Encourage and support habitat improvement projects within CTGCN.

Planning and review

- Assist in the review and provide recommendations for habitat work proposals completed by land management agencies that may affect CTGCN.
- Consider SGCN and their habitats during development of management plans for WMAs, Fishing Access Sites (FAS), and state parks.
- Develop management plans for CTGCN to benefit SGCN.
- Review and provide recommendations for federal land management planning processes (e.g., roads, timber, grazing) in CTGCN that may impact the community type and associated SGCN.
- Work with other agencies, organizations, and interested parties to promote habitat work to benefit SGCN.

Training and technical assistance

- Provide technical assistance as needed on issues related to SGCN and their habitats.
- Provide technical assistance to landowners who are considering various conservation easement options on their properties that would benefit the conservation priorities outlined in the SWAP.

Statewide Impacts and Threats

Developments/Subdivisions

- Encourage counties and communities to use the FWP subdivision recommendations.
- Review and comment on subdivision requests that have the potential to impact SGCN and make recommendations based on FWP's *Fish and Wildlife Recommendations for Subdivision Development* (FWP 2012).
- When bridges are installed or replaced, use larger bridge spans to avoid or decrease floodplain constrictions (as opposed to small bridges with filled approaches).

Energy Exploration and Extraction – Including coal, oil, gas, Coal Bed Methane, and bentonite exploration and extraction; construction of pipelines.

- Incorporate recommendations in FWP's *Fish and Wildlife Recommendations for Oil and Gas Development in Montana* (In prep) for energy development projects
- Review and comment on energy related developments on public lands to minimize negative impacts to SGCN and their habitats

Wind Energy

- Incorporate recommendations in FWP's *Fish and Wildlife Recommendations for Wind Energy Development in Montana* (In prep) for energy development projects
- Review and comment on energy related developments on public lands to minimize negative impacts to SGCN and their habitats

Floodplain and Riparian **3,237,687 acres**
All Ecoregions **3.4% landcover**

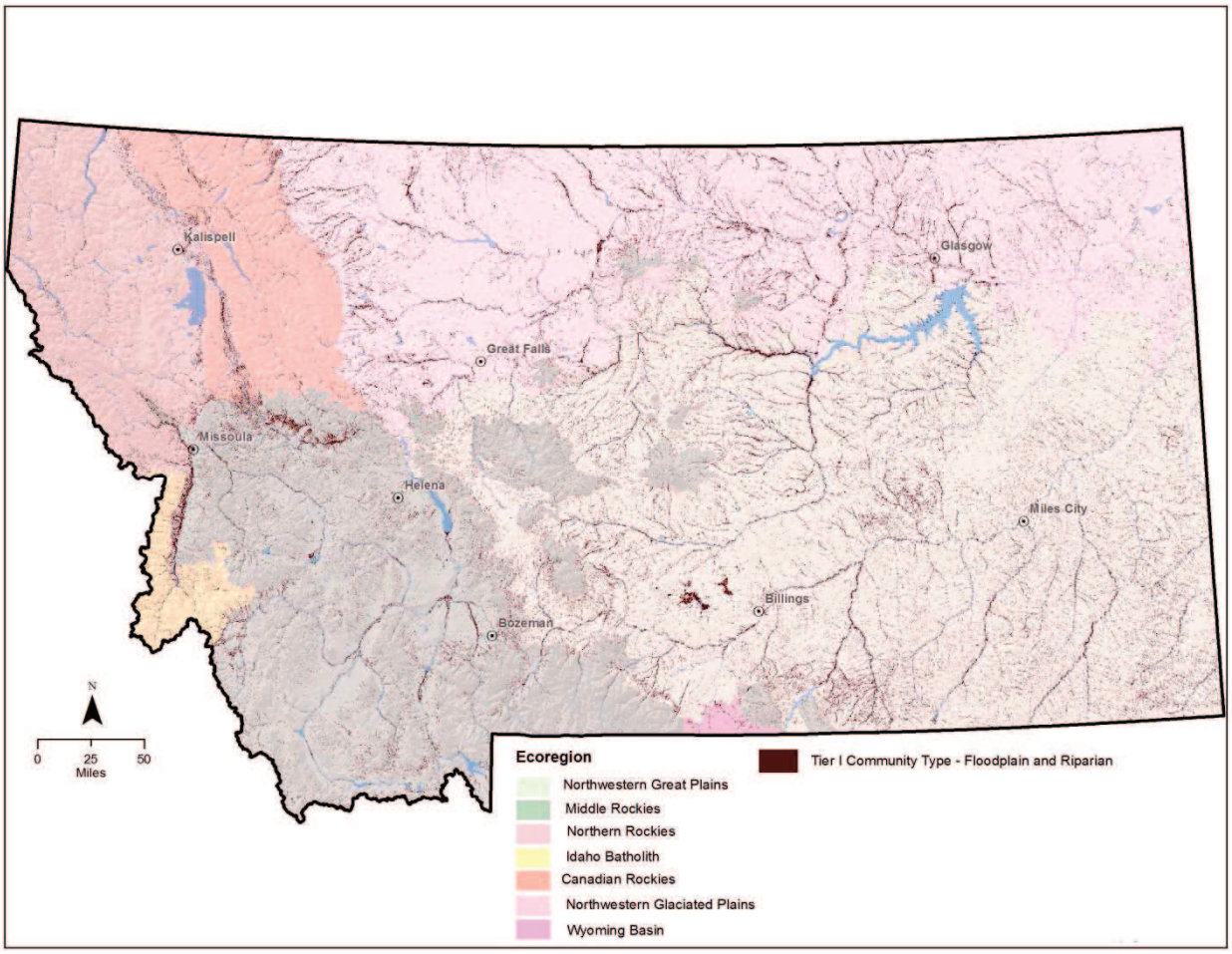

Figure 8. Distribution of Floodplain and Riparian Community Type

This community type is found throughout Montana, adjacent or immediately upland from rivers, and greatly varies in species composition, elevation, soil type, protections, and threats.

Due to the complexity of Floodplain and Riparian systems, each site should be assessed with a site specific approach (e.g., objective, size). Often multiple tools will be needed in combination to reach the specific objectives and to protect, enhance, create, restore and/or improve the functionality of the open water system.

Completing the National Wetland Inventory and riparian habitat mapping would help guide management of this community type.

Associated Terrestrial SGCN

Amphibians
Coeur d'Alene Salamander
Great Plains Toad
Idaho Giant Salamander
Northern Leopard Frog
Plains Spadefoot
Western Toad

Birds
Alder Flycatcher
American Bittern
Baird's Sparrow
Black-backed Woodpecker
Black-billed Cuckoo
Black-crowned Night-Heron
Black-necked Stilt
Bobolink
Boreal Chickadee
Brown Creeper
Burrowing Owl
Cassin's Finch
Clark's Nutcracker
Common Tern
Evening Grosbeak
Ferruginous Hawk
Flammulated Owl
Franklin's Gull
Golden Eagle
Great Blue Heron
Great Gray Owl
Greater Sage-Grouse
Green-tailed Towhee
Harlequin Duck
Le Conte's Sparrow
Least Tern
Lewis's Woodpecker
Loggerhead Shrike
Mountain Plover
Nelson's Sharp-tailed Sparrow
Northern Goshawk
Northern Hawk Owl
Peregrine Falcon
Pileated Woodpecker
Pinyon Jay
Piping Plover
Red-headed Woodpecker
Sharp-tailed Grouse
Varied Thrush
Veery
White-faced Ibis
Yellow-billed Cuckoo

Mammals
Arctic Shrew
Bison
Canada Lynx
Dwarf Shrew
Fisher
Fringed Myotis
Grizzly Bear
Hoary Bat
Merriam's Shrew
Northern Bog Lemming
Northern Short-tailed Shrew
Pallid Bat
Preble's Shrew
Pygmy Shrew
Spotted Bat
Townsend's Big-eared Bat
Wolverine

Reptiles
Greater Short-horned Lizard
Milksnake
Northern Alligator Lizard
Smooth Greensnake
Snapping Turtle
Spiny Softshell
Western Hog-nosed Snake
Western Skink

Floodplain and Riparian Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Agriculture Dewatering Irrigation impacts	Agriculture Dewatering Irrigation impacts	Encourage and restore natural processes and flow regimes in regulated river systems that help to sustain riparian communities and floodplain function, without causing agricultural or other private land impacts. This may require assistance from dam operators to restore a more natural annual flow regime Implement willow and other native riparian shrub planting – to stabilize soils and reduce erosion Maintain or repair water control structures to remove accumulation of debris that may be partially of totally obstructing the flow Minimize non-natural barriers that may inhibit or alter stream edge or other water body edge habitat Monitor water quality to ensure the management of adjacent lands is not adversely affecting open water Use vegetative restoration and other "soft" measures for controlling stream bank Work with irrigation districts to maintain or improve water levels/conditions for particular floodplain and riparian areas important to SGCN Work with landowners and government agencies to limit hydrologic modifications that would have negative impacts on riparian vegetation health over the long-term

Current Impacts	Future Threats	Conservation Actions
Poor grazing practices	Poor grazing practices	Develop off-stream water sources or water gaps for livestock Promote recruitment of aspen and cottonwood stands by building exclosures to protect young trees from overbrowsing Provide incentives to private landowners to fence livestock out of riparian areas that could increase nutrient flow into riparian systems Work with landowners and land management agencies to develop a sustainable grazing rotation that will minimize impacts to riparian vegetation, streambank stabilization, and SGCN, and allow for regeneration of cottonwood seedlings and other native vegetation
Land use change: Conversion of native habitat to cropland agriculture Cottonwood tree removal Fire regime Wetland draining	Land use change: Conversion of native habitat to cropland agriculture Cottonwood tree removal Fire regime Green ash removal Loss of riparian habitat because of bank stabilization Russian olive replacing cottonwood Wetland draining	For cottonwood trees that need to be cut for safety purposes, cut off to leave a "high stump" of 10-20 feet tall, if it can safely be done; tall stumps are much more valuable for wildlife than low stumps Promote policies that support the maintenance of native plant communities in both state and federal programs Reestablish native vegetation where opportunities exist and work to control non-native, invasive species such as Russian olive; discourage the use of invasive species in shelterbelts that may spread seed to threaten native riparian communities Work with local watershed groups to develop large scale wetland restoration projects where appropriate

Current Impacts	Future Threats	Conservation Actions
Forest management: Conflicting management policies Off-road Vehicle (ORV) trespass on closed roads Road construction	Forest management: Conflicting management policies Increased ORV use and subsequent illegal use Road construction	Consider seasonal and temporal closures of important SGCN breeding areas to minimize disturbance during sensitive activities such as nesting and brood rearing Evaluate riparian and wetland areas for designation as Important Bird Areas (IBA) Increase enforcement of ORV trespass on public lands Increase education and outreach to ORV community Limit timber harvest in cottonwood riparian habitat, other than to remove exotic species Manage for a range of habitat age classes to sustain old growth forests over time When present, leave large "legacy" trees, burned or unburned, for SGCN that require large-diameter trees; trees greater than 24 inches dbh are especially valuable Where appropriate, leave stringers of trees along drainages and gulches to help maintain cover for travel corridors for larger wildlife species
Bridge construction and enlargement Development/subdivisions Roads	Bridge construction and/or upgrades Development/subdivisions Roads	Encourage completion of channel migration studies to better define future stream meandering in rapidly developing valley areas Utilize as necessary, the planning guide for protecting Montana's wetlands and riparian areas (Ellis and Richard 2008)

Current Impacts	Future Threats	Conservation Actions
Fragmentation: Highway corridors Train and vehicle traffic	Fragmentation: Fences inhibiting wildlife movement Highway corridors Increased road density on public land Road upgrading Increasing train and vehicle traffic	Explore the possibility of providing wildlife overpasses and underpasses along major transportation corridors and implement where feasible Maintain public access roadways into public land to help keep the public on those roads and prevent damage from illegal ORV use Manage road density at or below current levels Promote wildlife-friendly fencing when needed, and remove fences that are obsolete Remove fences to prevent collisions/entanglement by both avian and mammalian species Work with landowners and land management agencies to limit activities that may further fragment the landscape and negatively impact SGCN Work with railroad companies to reduce impacts in important connectivity areas and to minimize grain spills
Mine contamination from past mining activities Pollution from urban runoff and superfund sites	Mine contamination from past mining activities New hard rock mines Pollution from urban runoff and superfund sites	Offer technical assistance to other agencies engaged in remediation of abandoned mines, to ensure cleanup protects fish and wildlife health Work with lead agencies to ensure impacts to fish and wildlife are identified at superfund sites

Current Impacts	Future Threats	Conservation Actions
Motorized use Recreation - very high at some FAS	Motorized use on logging roads Increased recreation Ski area expansions	Increase education and outreach to ORV community Increase enforcement of ORV trespass on public lands Maintain public access roadways into public land to help keep the public on those roads and prevent damage from illegal ORV use Work with land management agencies to ensure SGCN impacts are fully considered during recreational development on public lands
Weeds	Weeds	Implement invasive plant species control – mechanical, biological, and chemical tools (site specific) should be selected to control invasive plant species Remove and/or restrict the spread and distribution of invasive plants that harm desired native habitat attributes Remove detrimental exotic species such as Russian olive, salt cedar, and Norway maple When possible, conduct weed spraying in the late summer and early fall, as this tends to have less impacts on native forbs than spraying earlier in the growing season; special consideration must be taken in selecting chemicals applied in riparian habitats to avoid negative impacts to water quality Work collaboratively with landowners, land management agencies, and county weed supervisors to develop landscape level approaches to weed management

Current Impacts	Future Threats	Conservation Actions
Aquatic invasive species (including bullfrogs)	Aquatic invasive species (including bullfrogs)	Expand educational efforts to help prevent the spread of invasive animal species Follow guidance in *Montana's Aquatic Nuisance Species (ANS) Management Plan* (2002) and updates or revisions to the plan Remove and/or restrict the spread and distribution of invasive animals that harm desired native habitat attributes
Climate change	Climate change	Continue to evaluate current climate science models and recommended actions Monitor habitat changes and address climate impacts through adaptive management as necessary

Additional Citations

Ellis, J. H. and J. Richard. 2008. A Planning Guide for Protecting Montana's Wetlands and Riparian Areas. Montana State University. 113 pp.

Montana Aquatic Nuisance Species Technical Committee. 2002. Montana Aquatic Nuisance Species Management Plan Final. 148 pp.

Open Water **828,204 acres**
All Ecoregions **0.9% landcover**

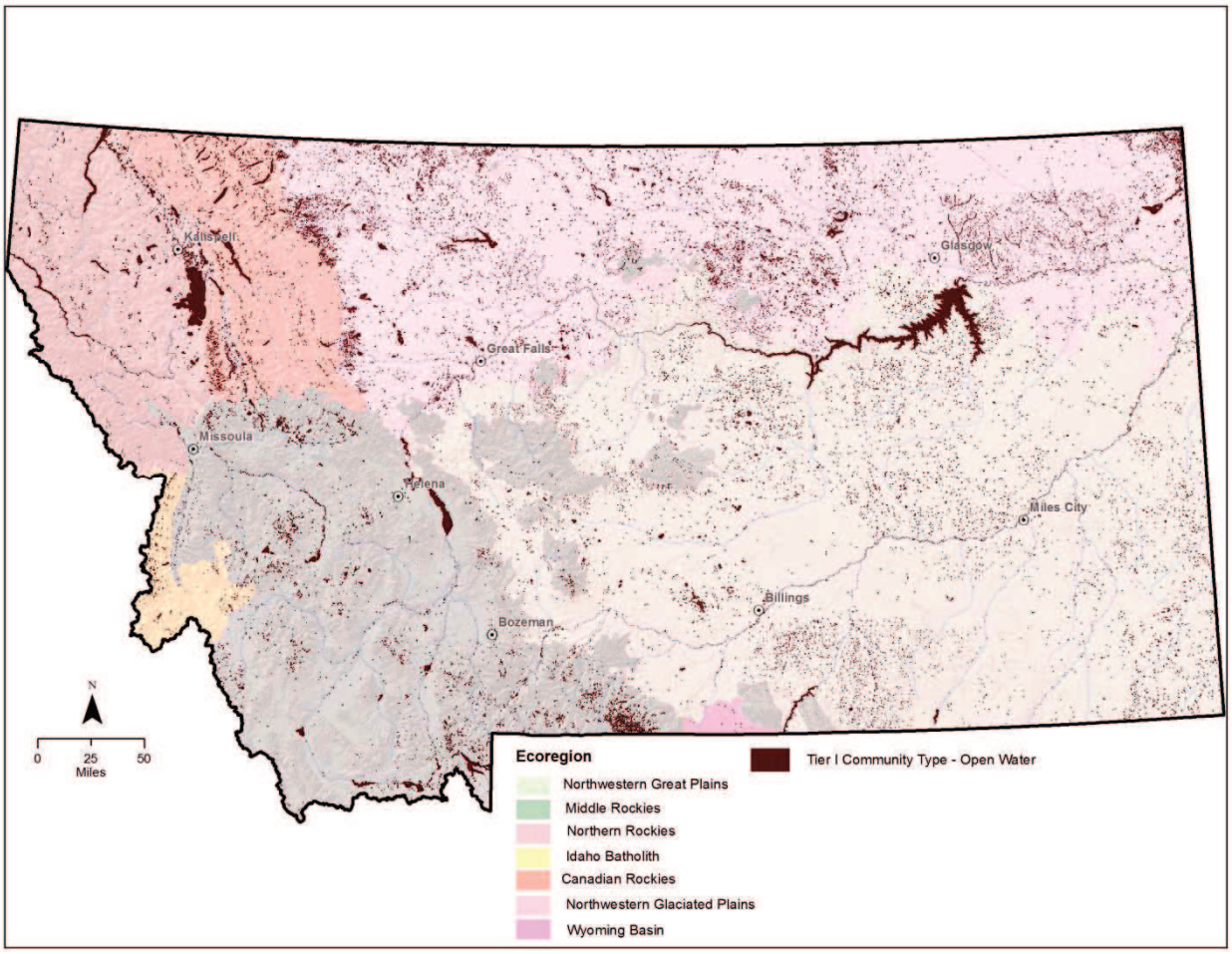

Figure 9. Distribution of Open Water Community Type

The Open Water Community Type includes natural and manmade lakes, reservoirs, large ponds, and the surface areas of rivers. Medium to large rivers in this community type are generally found in low-lying valley bottoms. All of these water features generally have less than 25% vegetation cover or bare soil (e.g., sandbars). The water is still or flowing and is absent of emergent vegetation except around the edges. Geysers and Hot Springs fall under the Open Water community type as well, however less than one square mile is classified as Geysers and Hot Springs in the 2013 Montana Land Cover layers. Because of the small area occupied, and because no SGCN is dependent on Geysers and Hot Springs, they are not considered in this discussion of Open Water.

Due to the complexity of Open Water systems, each site should be assessed with a site specific approach (e.g., objective, size). Often multiple tools will be needed in combination to reach the specific objectives and to protect, enhance, create, restore and/or improve the functionality of the open water system.

Some broader conservation actions include:

- Create artificial nesting platforms, where appropriate, to provide additional nesting opportunities if natural nesting habitat is not available.
- Follow recommendations in *A Strategic Framework for Wetland and Riparian Area Conservation and Restoration in Montana 2013–2017* (Montana Wetland Council 2013) which includes the overarching wetland goal of no overall net loss of the state's remaining wetland resource base (as of 1989) and an overall increase in the quality and quantity of wetlands in Montana. The Montana Wetland Council also supports the goal to maintain, protect, and restore the ecological integrity of riparian areas.
- Implement and promote measures to prevent the spread of chytrid fungus (Maxell et al. 2004), whirling disease, and other waterborne diseases during research, monitoring, management, or recreational activities.
- Implement measures to protect and restore natural shoreline vegetation.
- Maintain beaver or explore restoring beaver in open water systems where they are found currently or historically. Their water manipulations may be critical for maintaining natural biotic diversity. Follow existing FWP protocols on translocating beaver.
- Maximize native aquatic plant growth that is beneficial to SGCN. Refer to Management of Montana's Amphibians (Maxell 2000) for amphibian-specific information.
- Limit the introduction of non-native fish species into waterbodies that support amphibious SGCN.
- Prohibit additional industrial development by waterbodies that could result in release of contaminants or petroleum products.

Associated Terrestrial SGCN

Amphibians
Great Plains Toad
Northern Leopard Frog
Plains Spadefoot
Western Toad

Birds
American Bittern
American White Pelican
Black Swift
Black Tern
Black-crowned Night-Heron
Black-necked Stilt
Caspian Tern
Clark's Grebe
Common Loon
Common Tern
Forster's Tern
Franklin's Gull
Harlequin Duck
Horned Grebe
Least Tern
Peregrine Falcon
Piping Plover
Sedge Wren
Trumpeter Swan
White-faced Ibis

Mammals
Hoary Bat
Spotted Bat
Townsend's Big-eared Bat

Reptiles
Smooth Greensnake
Snapping Turtle
Spiny Softshell

Open Water Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Agriculture Dewatering Irrigation impacts	Agriculture Dewatering Irrigation impacts	Develop open water specific management plans Maintain or repair water control structures to remove accumulation of debris that may be partially of totally obstructing the flow Manage water levels of lakes, reservoirs, rivers, and streams when possible, to mimic natural hydrologic cycles Minimize non-natural barriers that may inhibit or alter water levels Monitor water quality to ensure the management of adjacent lands is not adversely affecting open water Promote and implement water conservation measures in agricultural areas, to minimize impacts of withdrawals on surface water habitats Work with irrigation districts to maintain or improve water levels/conditions for particular open water areas important to SGCN Work with landowners and government agencies to limit additional hydrological modifications (e.g., dams, water diversions) that may be detrimental open water and associated SGCN
Powerline corridor	Powerline permit Utility corridor	Continue to work with local utility companies to mark power lines to reduce lethal collisions Whenever possible, install powerlines underground Work with utility companies and land management agencies to find the best path for new powerlines. Use of existing powerline corridors is ideal or along already disturbed habitat patches such as roads or railroads

Current Impacts	Future Threats	Conservation Actions
	Fragmentation: Fences inhibiting wildlife movement	Promote wildlife-friendly fencing when needed, and remove fences that are obsolete Remove fences to prevent collisions/entanglement by both avian and mammalian species
Mine contamination from past mining activities Pollution from urban runoff and superfund sites	Mine contamination from past mining activities New hard rock mines Pollution from urban runoff and superfund sites	Offer technical assistance to other agencies engaged in remediation of abandoned mines, to ensure cleanup protects fish and wildlife health Work with lead agencies to ensure impacts to fish and wildlife are identified at superfund sites
Oil and gas exploration and extraction Pipelines	Oil and gas exploration and extraction Pipelines	Encourage implementation of measures to reduce risk of oil spills into water bodies from train accidents, pipelines, oil wells, or other source activities
Motorized watercraft use Recreation - very high at some FAS	Motorized watercraft use Increased recreation	Increase education and outreach to watercraft users Increase enforcement of watercraft use
Aquatic invasive species (including bullfrogs)	Aquatic invasive species (including bullfrogs)	Expand educational efforts to prevent the spread of invasive species Follow guidance in *Montana's Aquatic Nuisance Species (ANS) Management Plan* (2002) and updates or revisions to the plan Remove and/or restrict the spread and distribution of invasive animals that harm desired native habitat attributes
	Climate change	Continue to evaluate current climate science models and recommended actions Monitor habitat changes and address climate impacts through adaptive management as necessary

Additional Citations

Maxell, B. A. 2000. Management of Montana's Amphibians: A Review of Factors that may Present a Risk to Population Viability and Accounts on the Identification, Distribution, Taxonomy, Habitat Use, Natural History and the Status and Conservation of Individual Species. U.S. Forest Service, Missoula, Montana. 161 pp.

Maxell, B. A., G. Hokit, J. Miller, and K. Werner. 2004. Detection of (*Batrachochytrium dendrobatidis*), the Chytrid Fungus Associated with Global Amphibian Declines, in Montana Amphibians. PowerPoint presentation.

Montana Aquatic Nuisance Species Technical Committee. 2002. Montana Aquatic Nuisance Species Management Plan Final. 148 pp.

Montana Wetland Council. 2013. A Strategic Framework for Wetland and Riparian Area Conservation and Restoration in Montana 2013–2017. 48 pp.

Wetlands **534,369 acres**
All Ecoregions **0.6% landcover**

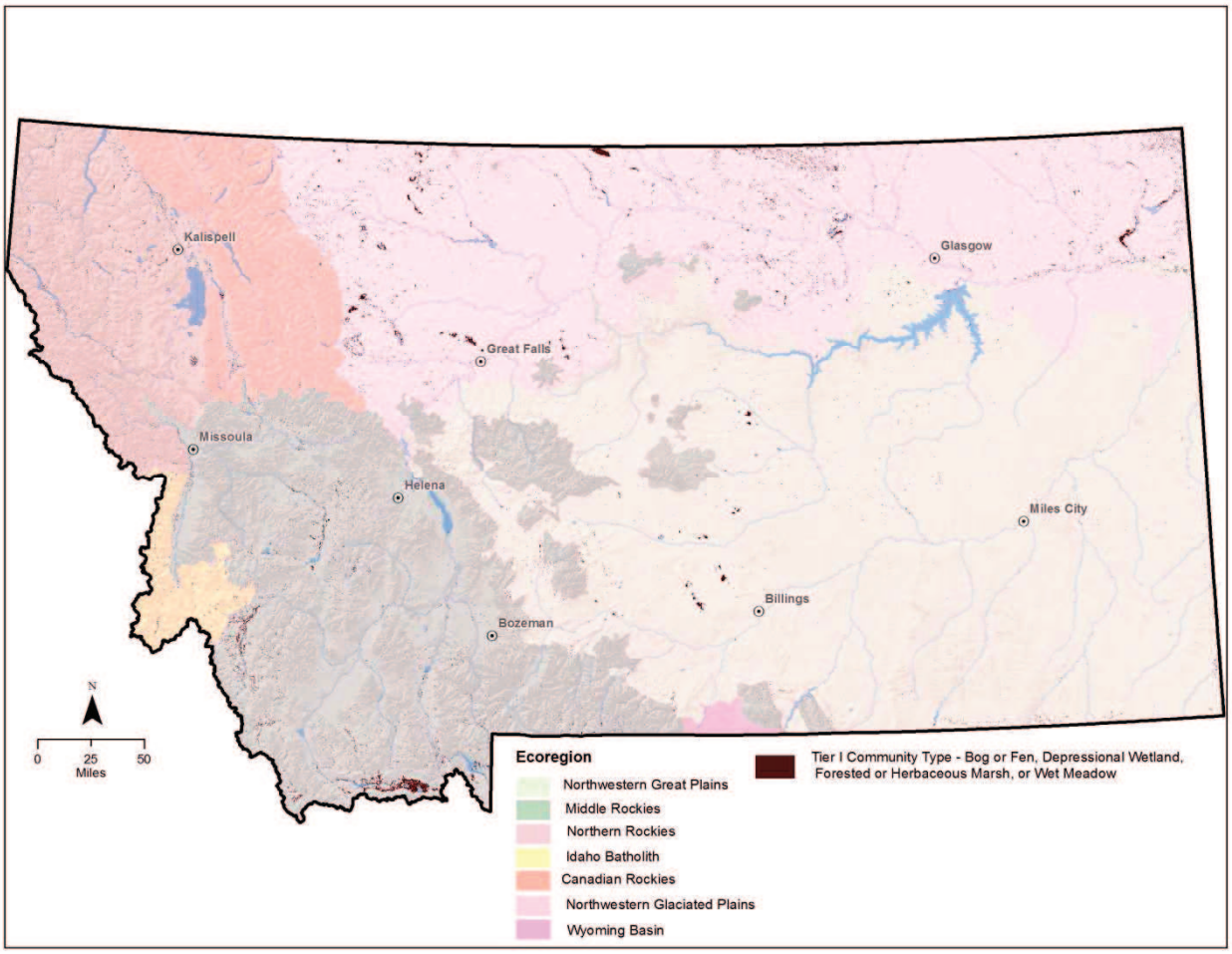

Figure 10. Distribution of Wetland Community Types

In Montana, there are 5 types of wetland community types: Bog and Fen, Forested Marsh, Herbaceous Marsh, Wet Meadow, and Depressional Wetland. While somewhat different in SGCN associations and locations in the state, most of these types are impacted by very similar threats, so they were addressed together.

Due to the complexity of wetland creation, enhancement, restoration, and the wide variety of wetland types, each site should be assessed with a site specific approach (e.g., objective, size). Often multiple tools will be needed in combination to reach the specific objectives and to protect, enhance, create, restore and/or improve the functionality of the wetland system.

Some broader conservation actions include:

- Better mapping of Montana wetlands is needed, through completion of the National Wetland Inventory and associated ground-truthing; a complete inventory of rare biota that are often associated with these habitats is needed.

- Identify ecologically significant wetlands as has been done by MNHP based on size, wetland condition, upland condition, diversity of plant communities, and presence of SGCN
- Existing wetland buffers typically used by management agencies around wetlands may be inadequate. Roads, trails, and timber harvest close to wetlands can cause eutrophication from sediment runoff and encourage invasion by noxious weeds. Buffers should be a minimum of 300 feet from the edge of the wetland.
- Follow recommendations in *A Strategic Framework for Wetland and Riparian Area Conservation and Restoration in Montana 2013–2017* (Montana Wetland Council 2013) which includes the overarching wetland goal of no overall net loss of the state's remaining wetland resource base (as of 1989) and an overall increase in the quality and quantity of wetlands in Montana. The Montana Wetland Council also supports the goal to maintain, protect, and restore the ecological integrity of riparian areas.
- Implement and promote measures to prevent the spread of chytrid fungus (Maxell et al. 2004), whirling disease, and other waterborne diseases during research, monitoring, management, or recreational activities.
- Maintain beaver or explore restoring beaver in wetland systems where they are found currently or historically. Their water manipulations may be critical for maintaining natural biotic diversity. Follow existing FWP protocols on translocating beaver.
- Maximize native aquatic species growth that is beneficial to waterbird, waterfowl, or amphibians. Refer to *Management of Montana's Amphibians* (Maxell 2000) for species specific information.
- Provide decision makers with data about pollution impacts on at-risk aquatic species to help them set water quality standards for key wetlands.
- Utilize as necessary the planning guide for protecting Montana's marsh and riparian areas (Ellis and Richard 2008).

Bog or Fen Associated Terrestrial SGCN

Amphibians
Western Toad

Birds
Alder Flycatcher
American Bittern
Clark's Nutcracker
Great Blue Heron
Great Gray Owl
Le Conte's Sparrow
Northern Hawk Owl
Varied Thrush

Mammals
Fisher
Fringed Myotis
Grizzly Bear
Northern Bog Lemming
Pygmy Shrew
Townsend's Big-eared Bat

Depressional Wetland Associated Terrestrial SGCN

Amphibians
Great Plains Toad
Northern Leopard Frog
Plains Spadefoot
Western Toad

Birds
Alder Flycatcher
American Bittern
American White Pelican
Baird's Sparrow
Black Tern
Black-crowned Night-Heron
Black-necked Stilt
Bobolink
Clark's Grebe
Common Tern
Evening Grosbeak
Ferruginous Hawk
Forster's Tern
Franklin's Gull
Great Blue Heron
Great Gray Owl
Greater Sage-Grouse
Horned Grebe
Le Conte's Sparrow
Loggerhead Shrike
Nelson's Sharp-tailed Sparrow
Northern Goshawk
Northern Hawk Owl
Peregrine Falcon
Piping Plover
Sedge Wren
Varied Thrush
White-faced Ibis

Mammals
Arctic Shrew
Fisher
Fringed Myotis
Grizzly Bear
Hoary Bat
Northern Bog Lemming
Northern Short-tailed Shrew
Preble's Shrew
Pygmy Shrew
Spotted Bat
Townsend's Big-eared Bat

Reptiles
Smooth Greensnake
Western Hog-nosed Snake

Forested Marsh Associated Terrestrial SGCN

Amphibians
Western Toad

Birds
Alder Flycatcher
Brown Creeper
Great Blue Heron
Northern Goshawk
Northern Hawk Owl
Pileated Woodpecker
Varied Thrush

Mammals
Fisher
Fringed Myotis
Grizzly Bear
Northern Bog Lemming
Pygmy Shrew
Townsend's Big-eared Bat

Herbaceous Marsh Associated Terrestrial SGCN

Amphibians
Great Plains Toad
Northern Leopard Frog
Plains Spadefoot
Western Toad

Birds
American Bittern
American White Pelican
Black Tern
Black-crowned Night-Heron
Black-necked Stilt
Bobolink
Clark's Grebe
Common Loon
Common Tern
Forster's Tern
Franklin's Gull
Great Blue Heron
Horned Grebe
Le Conte's Sparrow
Nelson's Sharp-tailed Sparrow
Peregrine Falcon
Trumpeter Swan
White-faced Ibis

Mammals
Fringed Myotis
Grizzly Bear
Hoary Bat
Northern Bog Lemming
Spotted Bat
Townsend's Big-eared Bat

Reptiles
Snapping Turtle
Western Hog-nosed Snake

Wet Meadow Associated Terrestrial SGCN

Amphibians
Northern Leopard Frog
Western Toad

Birds
American Bittern
Black Rosy-Finch
Black-crowned Night-Heron
Bobolink
Clark's Nutcracker
Ferruginous Hawk
Franklin's Gull
Gray-crowned Rosy-Finch
Great Blue Heron
Great Gray Owl
Green-tailed Towhee
Le Conte's Sparrow
Peregrine Falcon
Trumpeter Swan
White-faced Ibis

Mammals
Grizzly Bear
Hoary Bat
Northern Bog Lemming
Pygmy Shrew
Townsend's Big-eared Bat
Wolverine

Wetlands Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Agriculture Dewatering Irrigation impacts	Agriculture Dewatering Irrigation impacts Water level changes and nutrient inflow	Avoid activities upstream or up-drainage from wetlands that may contribute to excessive nutrients or altered water flows Avoid additional hydrologic modifications that would have negative impacts on wetland vegetation health over the long-term, including water diversions, dams, channel modifications, or excessive groundwater withdrawals Encourage and restore natural processes and flow regimes to wetlands without causing agricultural or other private land impacts, in order to benefit natural wetland vegetation species growth Maintain natural water barriers and/or remove unnecessary or man-made barriers to maintain or improve habitat conditions Maintain or repair water control structures to remove accumulation of debris that may be partially of totally obstructing the flow Minimize non-natural barriers that may inhibit or alter wetland water levels Monitor water quality to ensure the management of adjacent lands is not adversely affecting wetlands When necessary, work with irrigation districts to maintain or improve water levels/conditions for particular wetlands important to SGCN Work with private landowners and management agencies to restore wetlands in places where they have been drained; promote NRCS wetland programs to willing landowners to expand opportunities to achieve wetland restoration

Current Impacts	Future Threats	Conservation Actions
Poor grazing practices	Poor grazing practices	Develop watering sites adjacent to wetlands to reduce impacts within the wetlands Provide escape ramps in stock tanks to prevent drowning of small mammals and birds Provide incentives to private landowners to fence livestock out of wetlands and prevent other activities that could increase nutrient flow into wetlands Work with landowners and land management agencies to develop a sustainable grazing rotation that will minimize impacts to wetland vegetation; soil; and SGCN, especially during sensitive periods (e.g., nesting); and allow for regeneration of cottonwood seedlings and other native vegetation
Land use change: Cottonwood tree removal Fire regime Some wetland draining	Land use change: Cottonwood tree removal Fire regime Green ash removal Peat mining Russian olive replacing cottonwood Increased wetland draining	Avoid peat mining or other vegetation manipulation Manage for emergent canopy cover for breeding avian SGCN habitat Reestablish native vegetation where opportunities exist Remove Russian olive, salt cedar, and other exotic plants from wetlands when possible When appropriate, control conifer (juniper and/or Douglas fir) invasion by cutting or burning individual trees; prescribed fire over large landscapes may destroy valuable habitat and therefore individual trees should be targeted Work with local watershed groups to develop large scale wetland restoration projects where appropriate

Current Impacts	Future Threats	Conservation Actions
Forest management: Conflicting management policies ORV trespass on closed roads Roads	Forest management: Conflicting management policies Increased ORV use and subsequent illegal use Roads	Avoid wetlands during road construction and provide adequate buffers around them Decommission old/unused roads Determine the need for reseeding and/or resource management after wildland fires; monitor site for noxious weeds Increase education and outreach to ORV community Increase enforcement of ORV trespass on public lands Promote use of native plants for restoration for reclaiming roads Protect wetlands from large wildfires, when possible; firebreak construction should be done at least 300 feet from the edges of the wetland to avoid negative impacts to the wetland Work with landowners and land management agencies to limit forest management activities (e.g., burning, logging) that may be detrimental to wetland habitats and associated SGCN
Bridge construction and enlargement Development/subdivisions Powerline corridor Roads	Bridge construction and enlargement Development/subdivisions Powerline permit Roads Utility corridor	Continue to work with local utility companies to mark power lines to reduce lethal collisions Re-route or remove and reclaim roads and trails that are causing resource damage to wetlands Roads should be constructed to have minimal to no impact on wetlands and associated SGCN Whenever possible, install powerlines underground

Current Impacts	Future Threats	Conservation Actions
		Work with landowners and land management agencies to limit activities that may be detrimental to wetlands and associated SGCN Work with utility companies and land management agencies to find the best path for new powerlines. Use of existing powerline corridors is ideal or along already disturbed habitat patches such as roads or railroads
Fragmentation: Highway corridors Train and vehicle traffic	Fragmentation: Fences inhibiting wildlife movement Highway corridors Increasing train and vehicle traffic Increased road density on public lands Road upgrading	Explore the possibility of providing wildlife overpasses and underpasses along major transportation corridors and implement where feasible Maintain public access roadways into public land to help keep the public on those roads and prevent damage from illegal ORV use Manage road density at or below current levels Promote wildlife-friendly fencing when needed; remove fences that are obsolete Remove fences to prevent collisions/entanglement by wildlife Work with landowners and land management agencies to limit activities that may further fragment the landscape and negatively impact SGCN Work with railroad companies to reduce impacts in important connectivity areas and to minimize grain spills

Current Impacts	Future Threats	Conservation Actions
Mine contamination from past mining activities Pollution from urban runoff and superfund sites	Mine contamination from past mining activities and expansion of mining New hard rock mines Pollution from urban runoff and superfund sites	Offer technical assistance to other agencies engaged in remediation of abandoned mines, to ensure cleanup protects fish and wildlife health Work with lead agencies to ensure impacts to fish and wildlife are identified at superfund sites
Motorized use ORV trespass on closed roads Recreation	Motorized use on logging roads Increased ORV use and subsequent illegal use Increased recreation Ski area expansions	Any pack stock should be fed certified weed-free or pelletized feed Increase education and outreach to ORV community Increase enforcement of ORV trespass on public lands Maintain public access roadways into public land to help keep the public on those roads and prevent damage from illegal ORV use Re-route or remove and reclaim roads and trails that are causing resource damage to wetlands Work with land management agencies to ensure SGCN impacts are fully considered during recreational development on public lands
Weeds	Weeds	Assist landowners, local governments, and other agencies with existing weed control programs when feasible Implement invasive plant species control – mechanical, biological, and chemical tools (site specific) should be selected to control invasive plant species Remove and/or restrict the spread and distribution of invasive plants that harm desired native habitat attributes

Current Impacts	Future Threats	Conservation Actions
		Remove detrimental exotic species such as Russian olive, salt cedar, and Norway maple When possible, conduct weed spraying in the late summer and early fall, as this tends to have less impacts on native forbs than spraying earlier in the growing season; special consideration must be taken in selecting chemicals applied in wetland habitats to avoid negative impacts to water quality Work collaboratively with landowners, land management agencies, and county weed supervisors to develop landscape level approaches to weed management
Aquatic invasive species (including bullfrogs)	Aquatic invasive species (including bullfrogs)	Expand educational efforts to help prevent the spread of invasive animal species Follow guidance in *Montana's Aquatic Nuisance Species (ANS) Management Plan* (2002) and updates or revisions to the plan Remove and/or restrict the spread and distribution of invasive animals that harm desired native habitat attributes
Climate change	Climate change	Continue to evaluate current climate science models and recommended actions Monitor habitat changes and address climate impacts through adaptive management as necessary

Additional Citations

Ellis, J. H. and J. Richard. 2008. A Planning Guide for Protecting Montana's Wetlands and Riparian Areas. Montana State University. 113 pp.

Maxell, B. A. 2000. Management of Montana's Amphibians: A Review of Factors that may Present a Risk to Population Viability and Accounts on the Identification, Distribution, Taxonomy, Habitat Use, Natural History and the Status and Conservation of Individual Species. U.S. Forest Service, Missoula, Montana. 161 pp.

Maxell, B. A., G. Hokit, J. Miller, and K. Werner. 2004. Detection of (*Batrachochytrium dendrobatidis*), the Chytrid Fungus Associated with Global Amphibian Declines, in Montana Amphibians. PowerPoint presentation.

Montana Aquatic Nuisance Species Technical Committee. 2002. Montana Aquatic Nuisance Species Management Plan Final. 148 pp.

Montana Wetland Council. 2013. A Strategic Framework for Wetland and Riparian Area Conservation and Restoration in Montana 2013–2017. 48 pp.

Alpine Grassland and Shrubland & Alpine Sparse or Barren **282,476 acres**
Ecoregion: Canadian Rockies **0.3% landcover**

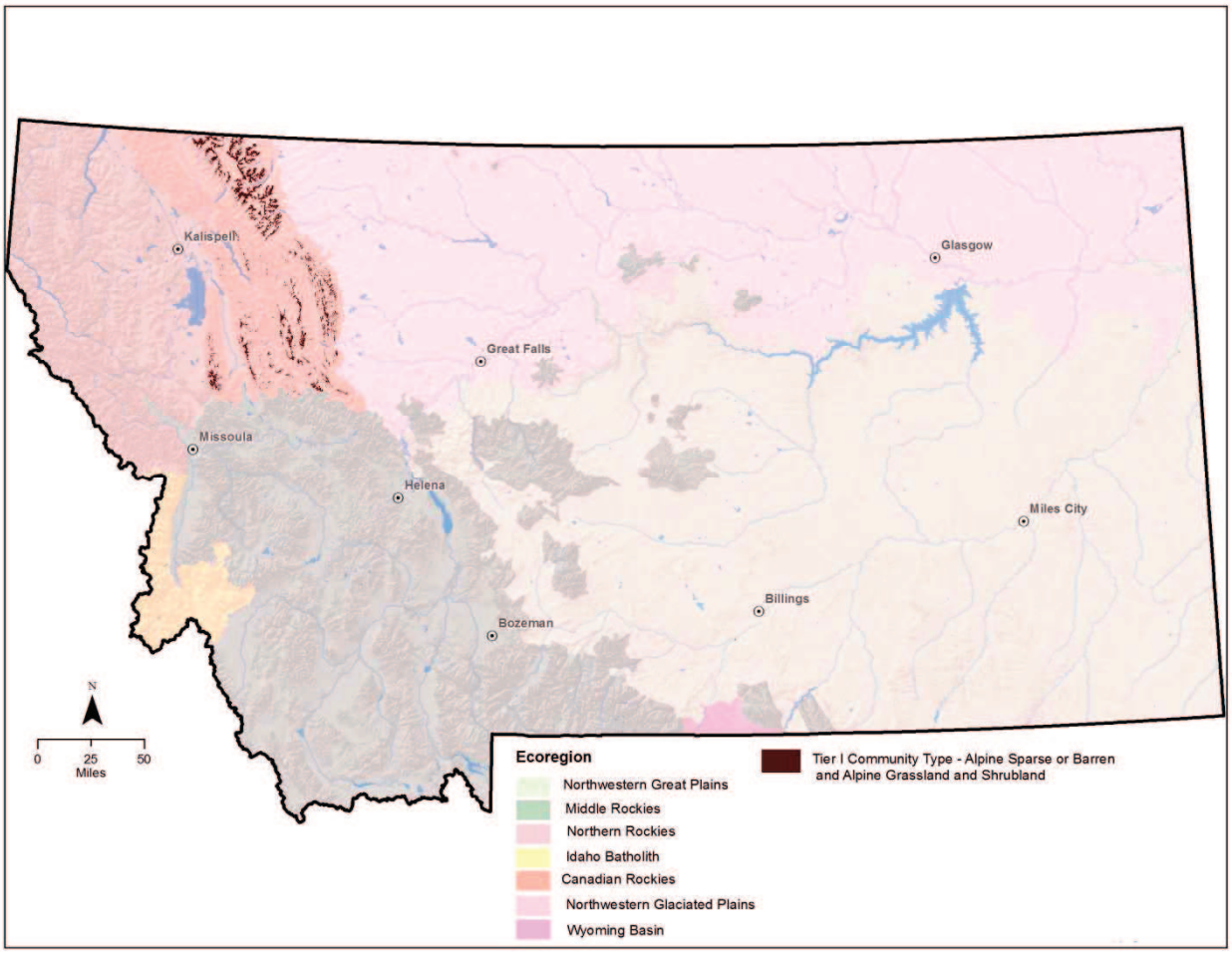

Figure 11. Distribution of Tier I Alpine Grassland and Shrubland & Alpine Sparse and Barren

The alpine community types are found at elevations above 6,600 feet in Montana. The vegetation cover is generally no more than 50%, and ranges in height from 5 inches (sedges, rushes, grasses, and forbs) to 1.6 feet (dwarf shrublands). At the highest elevations, above 7,500 feet, there is less vegetation, and ground cover varies from bedrock and scree to perennial ice. The entire area is characterized by a cold, short growing season, and generally heavy snow accumulation except where the wind keeps it blown free.

This entire community is fragile and is easily impacted. Though it is slow to recover, areas impacted by direct human contact are restricted by access. A bigger impact is the changing climate causing melting snow to be more than snow accumulation, and the retreating of ice fields.

Associated Terrestrial SGCN

Birds
Black Rosy-Finch
Black Swift
Golden Eagle
Gray-crowned Rosy-Finch
Peregrine Falcon
White-tailed Ptarmigan

Mammals
Dwarf Shrew
Fisher
Grizzly Bear
Wolverine

Alpine Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Poor grazing practices	Poor grazing practices	Work with landowners and land management agencies to develop a sustainable grazing rotation that will limit impacts to sensitive alpine areas
Recreation	Recreation	Evaluate recreational use such as campsites that can trample sensitive vegetation and incorporate potential restrictions if necessary
Climate change	Climate change	Actively pursue research and monitoring of vegetative species impacted by warming climate Collect baseline data in order to document shifting range limits (latitude and elevation) of alpine species Continue to evaluate current climate science models and recommended actions Monitor habitat changes and address climate impacts through adaptive management as necessary
	Connectivity	Encourage conservation projects that improve or provide connectivity between alpine habitats Work with landowners and land management agencies to limit activities that may further fragment the landscape and negatively impact connectivity between the high alpine areas

Conifer-Dominated Forest and Woodland (mesic-wet) **2,449,370 acres**
Ecoregions: Idaho Batholith Northern Rockies **2.6% landcover**

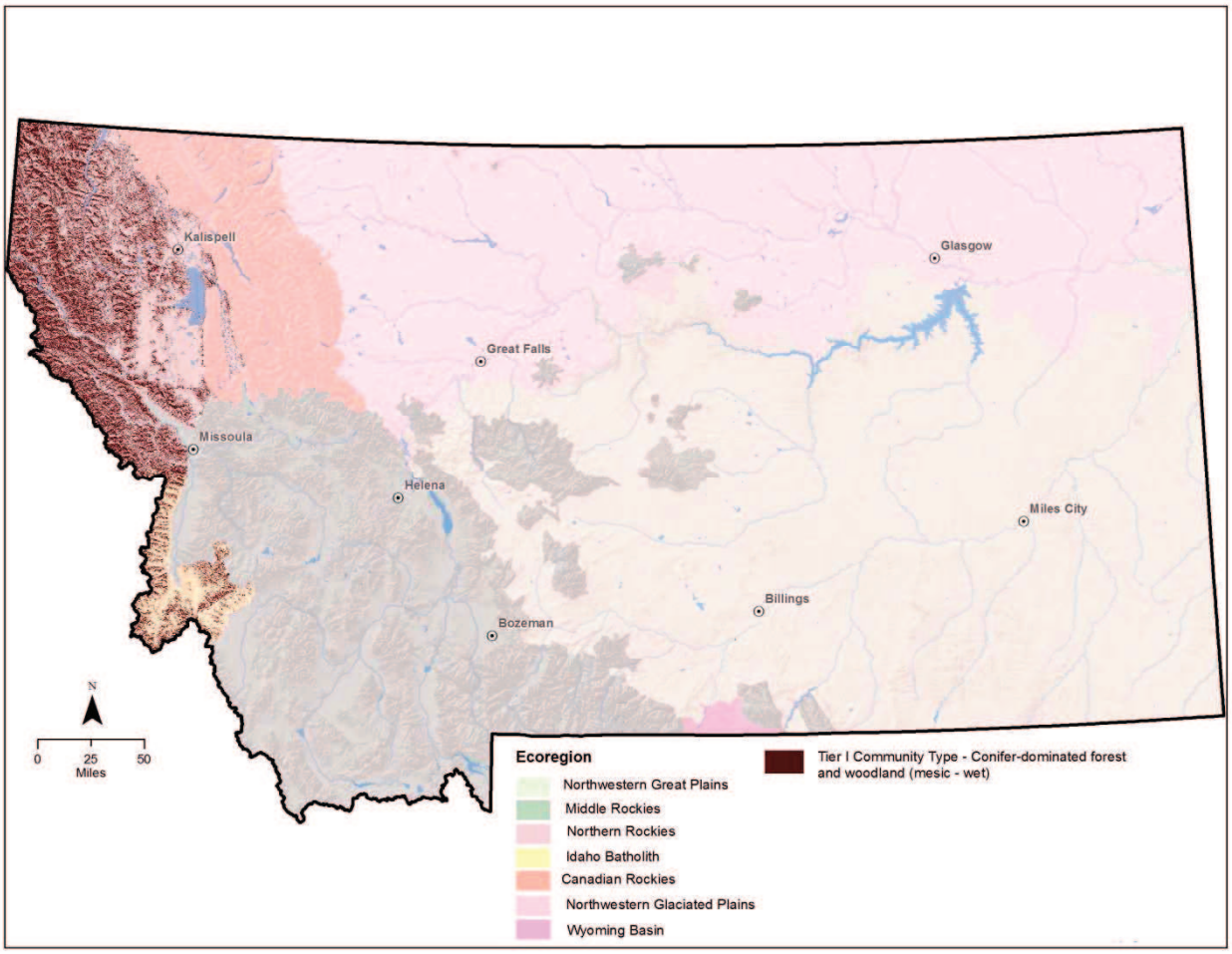

Figure 12. Distribution of Tier I Conifer-dominated Forest and Woodland (mesic-wet)

The mixed conifer forest dominated by western hemlock (*Tsuga heterophylla*), western red cedar (*Thuja plicata*), and grand fir (*Abies grandis*) are found at elevations in Montana from 2,000-5,200 feet. The Engelmann spruce (*Picea engelmannii*) and subalpine fir (*Abies lasiocarpa*) dominated forest is found from 2,900-8,800 feet.

In the past, this community type was a priority for timber production in northwestern Montana. Large, old stumps from past harvest activities provide evidence that large-bowled trees used to be much more abundant on the landscape than they are today. Some broader conservation actions for this community type include:

- Educate the public and land managers about the high values of snags, mature and old growth stands, large "legacy" trees, burned forest, and large woody debris to SGCN.
- Long-term management goals should be to move towards conditions (e.g., old growth) that more closely match historic conditions.
- Manage for a variety of age-classes across the landscape to ensure recruitment from mature stands into future old-growth stands.

Associated Terrestrial SGCN

Amphibians
Coeur d'Alene Salamander
Idaho Giant Salamander
Western Toad

Birds
Black-backed Woodpecker
Boreal Chickadee
Brown Creeper
Cassin's Finch
Clark's Nutcracker
Evening Grosbeak
Flammulated Owl
Great Gray Owl
Northern Goshawk
Northern Hawk Owl
Pileated Woodpecker
Varied Thrush

Mammals
Canada Lynx
Fisher
Fringed Myotis
Grizzly Bear
Hoary Bat
Pygmy Shrew
Townsend's Big-eared Bat
Wolverine

Reptiles
Northern Alligator Lizard

Conifer-dominated Forest and Woodland (mesic-wet) Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Land use change: Fire regime	Land use change: Fire regime	Avoid burning stands of western red cedar, western hemlock, and grand fir when possible Provide for a range of habitat age classes to sustain preferred habitats over time Restore fire as a natural process in this community type where appropriate; the wetter habitat types within this community type are usually not subjected to stand-replacing fires
Forest management: Conflicting management policies ORV trespass on closed roads Roads	Forest management: Conflicting management policies Increased ORV use and subsequent illegal use Roads	Conduct salvage logging in fall and winter to avoid nesting seasons for avian SGCN During salvage activities, leave patches of snags rather than single snags standing Incorporate a diversity of native grasses, forbs, and shrubs appropriate for this forest type when reclaiming abandoned logging roads and other disturbed areas Increase enforcement of ORV trespass on public lands Increase education and outreach to ORV community Leave large woody debris (such as logs >12 inches dbh and >6 feet long) during thinning and harvest operations; leave in piles to the extent consistent with Montana slash law (MCA 76-13-401), to mimic areas of natural blow-down Leave stringers of trees along drainages and gulches to help maintain cover for travel corridors for larger wildlife species

Current Impacts	Future Threats	Conservation Actions
		Leave the largest and as many snags per acre as possible, when conducting commercial, thinning, or salvage harvest activities Limit or avoid spraying for spruce budworm, pine whites, and other native forest pests, except as needed around campgrounds and other special areas Maintain leaning snags when thinning forests Manage older high-elevation spruce-fir stands to maintain high horizontal cover Manage road density at or below current levels Manage timber stands in a variety of successional stages across the landscape to benefit a variety of SGCN Snags in open areas vulnerable to wind throw can be cut off to leave a "high stump" of 10-20 feet tall, if suitable logging equipment can be deployed in the area When present, leave large "legacy" trees, burned or unburned, for SGCN that require large-diameter trees; trees greater than 24 inches dbh are especially valuable
Fragmentation: Highway corridors	Fragmentation: Highway corridors Increasing train and vehicle traffic Increased road density on public lands Road upgrading	Explore the possibility of providing wildlife overpasses and underpasses along major transportation corridors and implement where feasible Maintain public access roadways into public land to help keep the public on those roads and prevent damage from illegal ORV use Manage road density at or below current levels

Current Impacts	Future Threats	Conservation Actions
		Work with landowners and land management agencies to limit activities that may further fragment the landscape and negatively impact SGCN Work with railroad companies to reduce impacts in important connectivity areas and to minimize grain spills
Mine contamination from past mining activities	Mine contamination from past mining activities New hard rock mines	Offer technical assistance to other agencies engaged in remediation of abandoned mines, to ensure cleanup protects fish and wildlife health Work with landowners and land management agencies to limit impacts of hard rock mining on mature and old growth stands and negatively impact SGCN
Recreation	Increased recreation Motorized use on logging roads Ski area expansions	Increase education and outreach to ORV community Increase enforcement of ORV trespass on public lands Maintain public access roadways into public land to help keep the public on those roads and prevent damage from illegal ORV use Work with land management agencies to ensure SGCN impacts are fully considered during recreational development on public lands
Weeds	Weeds	Assist landowners, local governments, and other agencies with existing weed control programs when feasible Implement invasive plant species control – mechanical, biological, and chemical tools should be selected to control invasive plant species Remove and/or restrict the spread and distribution of invasive plants that harm desired native habitat attributes When possible, conduct weed spraying in the late summer and early fall, as this tends to have less impacts on native forbs than spraying earlier in the growing season

Current Impacts	Future Threats	Conservation Actions
		Work collaboratively with landowners, land management agencies, and county weed supervisors to develop landscape level approaches to weed management
Climate change	Climate change	Continue to evaluate current climate science models and recommended actions Monitor habitat changes and address climate impacts through adaptive management as necessary